



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

diaceous fungus, *Chrysophlyctis endobiotica* Schilberszky. It has been known in Europe for a long time, but has not hitherto been reported as occurring in America. The present article gives a general description of the disease, with figures showing its character. The purpose of the paper is one of warning, to enable farmers in the Dominion to recognize the trouble and prevent its introduction and spread into Canada.

Three fungous diseases of plants, not before reported, are briefly described by OSTERWALDER.¹⁷ He finds that a disease of *Levisticum officinale* Koch., affecting the leaves and stems on which it appears in the form of spots, is caused by a bacterium which is described as *Pseudomonas Levistici*. He was able to produce infections from pure cultures, but only in wounds. A disease of *Calceolaria rugosa* Hort., characterized by rotting of the stems at the ground, is ascribed to *Phytophthora omnivora* DeBary. *Sclerotinia Libertiana* Fuckel is described as attacking *Omphalodes verna* during wet weather.—H. HASSELBRING.

Chemotaxy.—ÅKERMAN¹⁸ studied the chemotactic responses of the sperms of *Marchantia* by the usual capillary tube method. They react strongly positively to the ions of potassium, rubidium, and caesium (agreeing with the behavior towards proteins as found by LIDFORSS¹⁹), and weakly to magnesium and ammonium. They are indifferent to sodium and calcium, and react negatively to the ions of hydrogen and zinc and to the bivalent ions of mercury, iron, and copper. In a potassium-free medium the tubes must contain at least 1/1000 mol. KNO₃ in order to attract, while in a potassium-containing medium the tube must have 40 times the concentration of the potassium shown by the medium. The corresponding gradient for proteins is 20. No evidence of osmotaxy was found in the organism. The tactic responses were greatly disturbed by gaseous impurities of the laboratory and by lack of oxygen.

KUSANO²⁰ has published a full statement of his work in the chemotactic and related reactions of the swarmspores of *Myxomycetes*. It is characterized by excellence of experimentation, critical consideration, and clear statement of results. *Aethalium septicum*, *Stemonitis jusca*, and *Comantricha longa* were the forms used. It was found that the activity and responses of the spores are not at all affected by a great decrease in oxygen, so the capillary method was used with a cover glass. All acids attract and bases repel; while neutral substances, if of moderate concentration and not highly toxic, act indifferently. Sodium hydrate

¹⁷ OSTERWALDER, A., Unbekannte Krankheiten an Kulturpflanzen und deren Ursachen. Centralbl. Bakt. II. 25:260-270. pls. 2. 1909.

¹⁸ ÅKERMAN, ÅKE, Ueber die Chemotaxis der *Marchantia* Spermatozoiden. Zeit. für Bot. 2:94-103. 1910.

¹⁹ LIDFORSS, B., Ueber die Reizbewegungen der *Marchantia* Spermatozoiden. Jahrb. Wiss. Bot. 41:65-87. 1905.

²⁰ KUSANO, S., Studies on the chemotactic and other related reactions of the swarmspores of *Myxomycetes*. Jour. Coll. Agr. Imp. Univ. Tokyo 2:1-83. 1909.

1/1,000,000 mol. repels, while it requires a somewhat stronger solution of hydrochloric acid to attract, and 1/600 mol. of the latter is the optimum for attraction. In acids the attraction is parallel to the dissociability. In high concentrations acids repel, due in strong mineral acids to the excess of hydrogen ions, and in weak organic acids to the undissociated molecules. In many of the latter acids the strong attraction of the hydrogen ion and weak repulsion of the molecule leads to injury and death of the spores because of the toxicity of the latter. The reaction, both negative and positive, is "apobatic" (PFEFFER's terminology) or involves "motor reflex" (JENNINGS). JENNINGS maintains that all tactic responses in animals are of this type, and that PFEFFER's so-called "strophic" reactions do not appear. He thinks it likely also that the same is the case in plants, and KUSANO's work brings more evidence for the support of this probable contention.—WILLIAM CROCKER.

Germination of spores of rusts.—In a paper by SCHAFFNIT²¹ some observations and experiments are given which seem to throw some light on the questions relating to the germination of uredospores and aecidiospores of the rusts. The irregularity of germination of these spores is well known to all experimenters, but no satisfactory explanation for their behavior has been given. SCHAFFNIT finds that the capacity for germination depends largely upon the degree of maturity of the spores. By mature spores he understands only those which have fallen from their stalks without being shaken by air currents or rain. Ordinarily large numbers of spores fall from the sori on account of the motion of the infected leaves, caused by the wind. The majority of these spores do not germinate, but if spores are gathered on a hot quiet day, when there is no wind, 80-100 per cent germinate within two hours. The thoroughly ripened spores have a darker color than the immature ones. Spores which have been separated prematurely from their pedicels are incapable of being ripened afterward. It seems, also, that spores cannot be ripened on leaves that have been cut from the plants. These observations suggest an interesting field for further investigation in the ecology of fungi. It must be confessed that our knowledge of the actual behavior, means of distribution, and germination of fungus spores in nature is very meager, even as to fungi of economic importance. Any contribution to this subject is important. The wide application of these results, which the author makes, would hardly seem justifiable until more extended and more accurate experiments have been conducted.—H. HASSELBRING.

Color production in *Penicillium*.—The effect of external factors on the color production of a certain species of *Penicillium* has been investigated by DOEBELT.²² It seems that in agar cultures the pigment, which is red, appears first near the

²¹ SCHAFFNIT, ERNST, Biologische Beobachtungen über die Keimfähigkeit und Keimung der Uredo- und Aecidiensporen der Getreideroste. Ann. Myc. 7:509-523. 1909.

²² DOEBELT, H., Beiträge zur Kenntnis eines pigmentbildenden *Penicilliums*. Ann. Myc. 7:315-338. 1909.